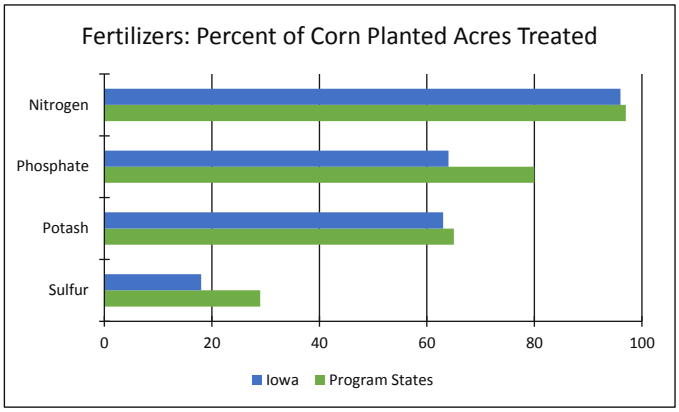
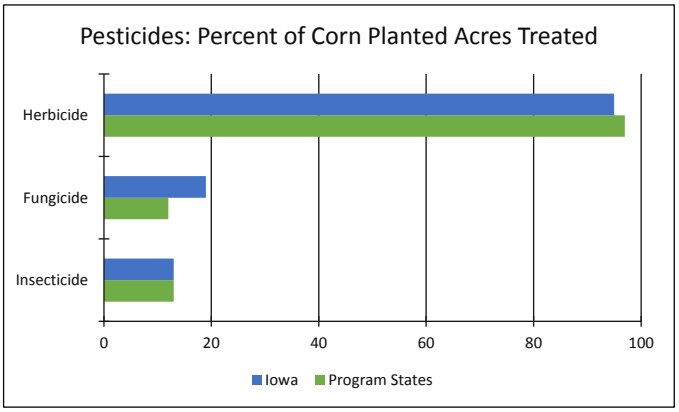
IOWA
AGRICULTURAL CHEMICAL USE

Corn, Fall 2014

The National Agricultural Statistics Service (NASS) Agricultural Chemical Use Program is the U.S. Department of Agriculture's official source of statistics about on-farm and post-harvest fertilizer and pesticide use and pest management practices.

In the fall of 2014, NASS collected data about chemical use and pest management practices used on corn production. The data was collected as part of the Agricultural Resource Management Survey (ARMS) and the results are presented here. The results are based on 3,550 surveys sent to producers in the 15 program states in 2014; there were 254 responses from Iowa producers. The 15 program states in the 2014 ARMS were Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin.





Top Pest Management Practices by Percent of Planted Corn Acres – Iowa

Prevention	No-till or minimum till used and plowed down crop residue using conventional tillage	68
Avoidance	Rotated crops during past 3 years	79
Monitoring	Scouted for weeds	94
Suppression	Ground covers, mulches, or other physical barriers maintained	40

Pesticides: Herbicide active ingredients were applied to 95 percent of the corn acres planted in Iowa. Atrazine was the most widely used pesticide overall, and Acetochlor was the active ingredient with the greatest total amount. Fungicide and insecticide active ingredients were applied to 19 percent and 13 percent of corn acres planted, respectively, in Iowa.

Fertilizers: Of the three primary macronutrients, nitrogen (N) was the most widely used on corn. Iowa farmers applied nitrogen to 96 percent of planted acres at an average rate of 141 pounds per acre per year. Macronutrients phosphate (P) and potash (K) were applied to the majority of acres, at an average rate of 68 and 82 pounds per acre per year, respectively. The secondary macronutrient, sulfur (S), was applied to 18 percent of acres planted to corn.

	Iowa			Program States [1]		
Active Ingredient	Planted Acres Treated (%)	Rate Applied per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)	Planted Acres Treated (%)	Rate Applied per Year (lbs/acre)	Total Lbs Applied (1,000 lbs)
Pesticide Use on Corn						
FUNGICIDE:						
Azoxystrobin	5	0.055	37	2	0.069	137
Metconazole	1	0.033	6	1	0.035	20
Propiconazole	7	0.053	50	5	0.057	216
Pyraclostrobin	9	0.123	146	5	0.125	501
Trifloxystrobin	4	0.040	23	3	0.049	117
TOTAL FUNGICIDE	19		296	12		1,162
HERBICIDE:						
2,4-D, 2-EHE	4	0.574	311	5	0.599	2,601
Acetochlor	42	1.383	7,938	29	1.256	28,685
Atrazine	56	0.888	6,767	55	1.018	45,231
Clopyralid	17	0.083	192	13	0.072	752
Dicamba, Soduim Salt	6	0.112	91	6	0.092	472
Diflufenzopyr-sodium	6	0.045	34	6	0.036	177
Dimethenamid-P	5	0.686	437	4	0.630	2,130
Flumetsulam	17	0.034	79	13	0.030	315
Glufosinate-Ammonium	2	0.444	132	1	0.432	234
Glyphosate	12	0.918	1,530	11	0.907	7,979
Glyphosate DIM. Salt	7	1.185	1,058	4	1.113	3,604
Glyphosate ISO. Salt	27	0.939	3,500	38	0.889	27,221
Glyphosate POT. Salt	24	1.222	3,959	24	1.159	22,560
Isoxaflutole	14	0.055	107	11	0.059	506
Mesotrione	34	0.119	554	27	0.115	2,529
Rimsulfuron	6	0.022	17	4	0.017	60
S-Metolachlor	18	1.199	3,021	27	1.106	23,600
Saflufenacil	4	0.064	34	4	0.060	178
Tembotrione	6	0.061	53	6	0.072	336
Thiencarbazone-methy	10	0.024	34	9	0.023	167
Topramezone	7	0.017	15	3	0.015	31
TOTAL HERBICIDE	95		30,240	97		176,291
INSECTICIDE:						
Bifenthrin	2	0.079	24	4	0.063	191
Tebupirimphos	4	0.008	5	1	0.008	9
TOTAL INSECTICIDE	13		122	13		1,684
Fertilizer Use on Corn						
Nitrogen	96	141	1,842,200	97	144	11,244,700
Phosphate	64	68	600,500	80	64	4,072,000
Potash	63	82	705,300	65	82	4,285,800
Sulfur	18	16	40,200	29	15	345,400

[1] The 15 program states surveyed about corn in the 2014 ARMS were Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin.

Pest Management Practices: Scouting for weeds was the top pest management practice on corn acreage.

	Iowa		Program States	
	Percent of Area Planted	Percent of Operations	Percent of Area Planted	Percent of Operations
AVOIDANCE				
Crop or plant variety chosen for specific pest resistance	61	58	57	54
Planting locations planned to avoid cross infestation of pests	20	21	24	22
Planting or harvesting dates adjusted	16	17	21	20
Rotated crops during past 3 years	79	85	84	84
Row spacing, plant density, or row directions adjusted	20	19	19	16
MONITORING				
Diagnostic laboratory services used for pest detection via soil or plant tissue analysis	10	12	13	9
Field mapping data used to assist decisions	24	23	18	15
Scouted				
-established process used	29	26	23	19
-for pests due to a pest advisory warning	20	17	9	7
-for pests due to a pest development model	17	14	10	8
-for pests or beneficial organisms-not scouted	5	7	7	13
-for pests or beneficial organism by conducting general observations while performing routine tasks	27	30	26	29
-for pests or beneficial organism by deliberately going to the crop acres or growing areas	67	63	67	58
Scouted for diseases	88	86	80	69
-by employee	1	(Z)	1	1
-by farm supply company or chemical dealer	23	25	14	15
-by independent crop consultant or commercial scout	6	7	16	13
-by operator, partner, or family member	70	68	68	71
Scouted for insects & mites	90	86	81	70
-by employee	1	(Z)	1	1
-by farm supply company or chemical dealer	23	23	15	15
-by independent crop consultant or commercial scout	6	7	17	14
-by operator, partner, or family member	71	70	67	70
Scouted for weeds	94	93	92	86
-by employee	1	(Z)	1	1
-by farm supply company or chemical dealer	20	20	13	14
-by independent crop consultant or commercial scout	5	6	15	11
-by operator, partner, or family member	74	74	70	73
Weather data used to assist decisions	48	46	57	56
Written or electronic records kept to track pest activity	33	31	34	29
PREVENTION				
Beneficial insect or vertebrate habitat maintained	16	13	14	13
Crop residues removed or burned down	6	7	9	10
Equipment & implements cleaned after field work to reduce spread of pests	19	19	35	33
Field edges, ditches, or fence lines were chopped, sprayed, mowed, plowed, or burned	52	51	56	50
Field left fallow previous year to manage insects	1	1	1	1
Flamer used to kill weeds	1	1	1	(Z)
No-till or minimum till used	68	73	67	67
Plowed down crop residue using conventional tillage	24	23	32	33
Seed treated for insect or disease control after purchase	25	27	23	19
Water management practices used	5	5	8	5
SUPPRESSION				
Beneficial organisms applied or released	2	2	1	1
Biological pesticides applied	11	14	10	10
Buffer strips or border rows maintained to isolate organic from non-organic crops	10	10	8	7
Floral Lures, attractants, repellants, pheromone traps, or biological pest controls used	1	1	1	(Z)
Ground covers, mulches, or other physical barriers maintained	40	40	47	46
Pesticides with different mechanisms of actions to keep pest from becoming resistant to pesticides	37	34	32	32
Scouting data compared to published information to assist decisions	26	27	24	21
Trap crop grown to manage insects	3	2	2	2

(Z) Less than half the rounding unit.

Data Summary Published to NASS Website

Complete data from the 2014 agricultural chemical use survey for corn are available on the NASS website at http://www.nass.usda.gov/Surveys/Guide_to_NASS_Surveys/Chemical_Use/

Uses of ARMS Data

Farm organizations, commodity groups, agribusiness, Congress, State Departments of Agriculture, and the USDA use information from ARMS to evaluate the production practices, resource use, and the financial performance of farm/ranch businesses and to make policy decisions affecting agriculture.

In general, farmers benefit from ARMS data indirectly. They see the information through contact with representatives from farm/commodity groups or extension advisors in reports issued by State colleges and universities, in farm magazines, newspapers, and on radio or TV broadcasts. Most respondents probably do not realize the data come from the ARMS but may be affected by the farm policy decisions that are made.

A few specific examples of how these data are used include:

- The National Corn Growers Association used data from past studies in their sustaining innovation media message, showing that farmers have increased corn production while reducing land, fertilizer, and chemical use.
- It will provide accurate real world information to update models that simulate the carbon footprint of corn and corn ethanol production.
- It will be used in the re-registration of existing pesticides and in the registration of new pesticides.

Markets cannot operate efficiently without accurate and timely information. As with all USDA reports everyone, from the smallest farmer to the largest agribusiness firm, has free and equal access to the results from this survey. This access to information allows farmers to stay on equal footing with agribusiness firms and others who market agricultural commodities.

TO IOWA PRODUCERS: This report contains results collected from the annual Agricultural Resource Management Survey. Your operation, large or small, represents Iowa agriculture. We appreciate your assistance in providing timely and accurate data. Thank you for your support.

~Greg Thessen, Director

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